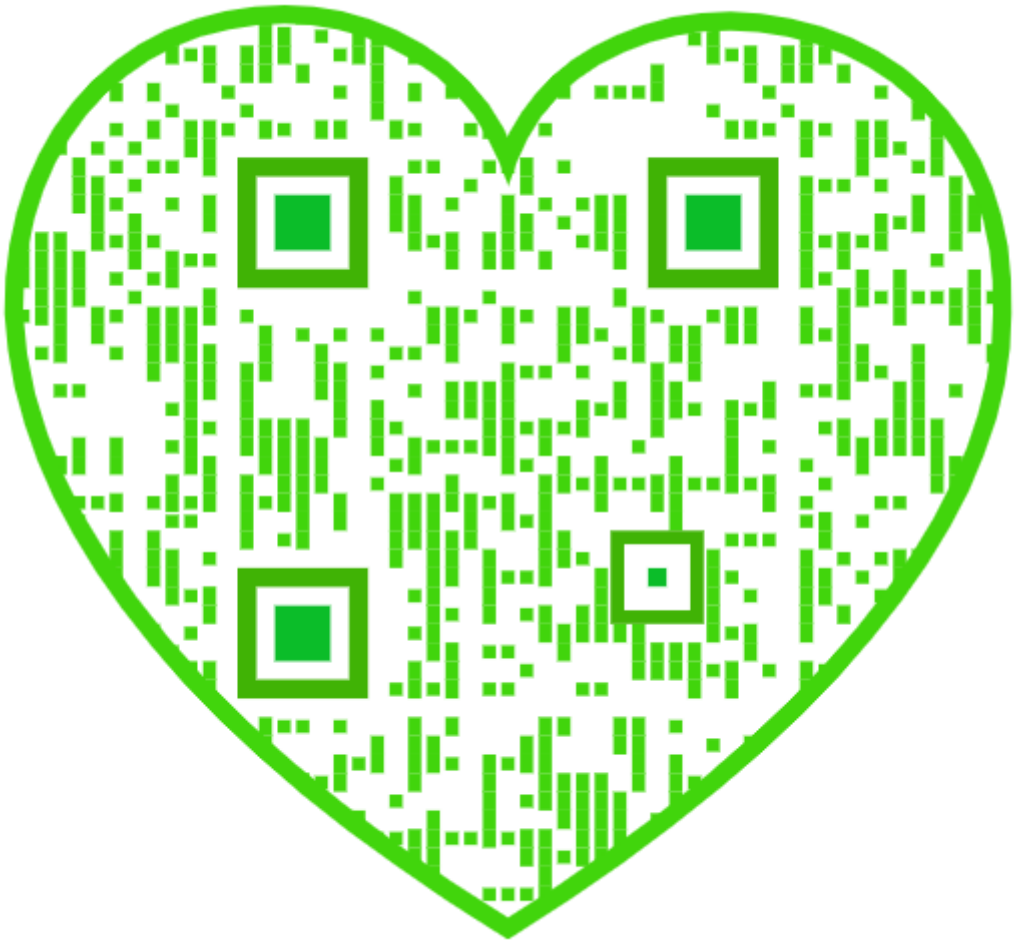
SUBMACHINE GUN
MGV-176

Instructions for Use



MGV 176 Submachine Gun

with stock extended

with silencer

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Warning:

It is not allowed to detach the spring mechanism from the drum without previously blocking the driving spring. If the spring mechanism is under tension and unblocked, it goes loose at once when attached from the drum. This can injure the shooter's hand and also mechanism can be damaged.

Before firing the bore must be wiped clean to remove the lubricant. Optical, laser and special aiming devices are maintained according to the factory instructions.

1. Introduction of MGV 176 Submachine Gun

1.1. Purpose

The MGV submachine gun is designed for short-distance combat, up to 150 m, specially on difficult terrain and in populated areas. According to its features it is specially suitable for police, military units, combat-vehicle personnel and others in need of handy quick-firing weapon.

The MGV 176 differs from most of other submachine guns in following:

- *It employs 5.6 mm rim-fire ammunition (.22 Long Rifle),*
- *The ammunition is stored in a horizontally positioned drum accepting 161 rounds,*
- *Many parts are made of durable plastic material.*

1.2. Basic Technical Data

caliber	*5.6 mm (0.22")*
ammunition type	*.22 Long Rifle*
length with stock folded	*480 mm*
length with stock extended	*745 mm*
barrel length	*260 mm*
mass without drum	*1.81 kg*
mass with empty drum	*2.88 kg*
loaded gun mass	*3.40 kg*
drum diameter	*174 mm*
drum capacity	*161 rounds*
firing mode	*single shots or bursts*
theoretical firing rate	*1200-1600 rounds per minute*
effective range	*150 m*
operating system	*straight blow-back*

1.3. Ammunition

The MGV 176 employs common .22 Long Rifle rim-fire ammunition (marked 5.6 x 16 R). It is recommended to use more potent loadings such as HV, High Velocity, Hi-Power, High-Speed and similar. If not available, standard .22 Long Rifle ammunition can be used, but only the copper-plated bullets. Waxed bullets are less suitable, as they lubricate the mechanism excessively which may cause a jam. In comparison to 9 mm cartridges used in most submachine guns, the .22 Long Rifle ammunition is smaller and less powerful, but because of this it recoils less upon being fired, and accomodates more cartridges in the drum. The penetration of single .22 Long Rifle bullets is modest (at 25 m 2.5 cm into a brick wall, 3 cm into a dry oak timber. etc.). The effectiveness means rapid automatic firing against live targets, obstructions and also protective equipment.

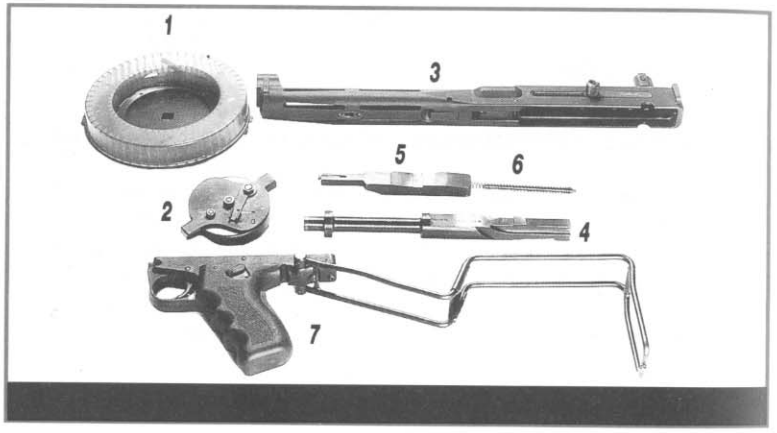
2. Description of MGV 176

2.1. Principle of Operation

According to the construction and operating mode, the MGV 176 is a typical submachine gun. Its operating system is based on straight blow-back and its bolt has a fixed firing pin. The weapon fires from open bolt. That means that before firing the bolt rests in its rear position, and when released by trigger, it is shoved swiftly forward by the recoil spring. The bolt pushes a cartridge from the drum into the barrel and activates it at once. On firing, the gases force the projectile through the bore and at the same time they force the bolt back via cartridge case. This movement also compresses the recoil spring, the bolt ejects the spent cartridge case from the weapon; and in burst firing, the described cycle is repeating rapidly. As the shooter depresses the trigger, the sear holds the bolt in rear position.

The ammunition is stored in the transparent-top drum in which the cartridges are in three levels, the springs taking care of revolving the drum and pushing the cartridge downwards, towards the bolt face. Longitudinal and lateral inclination of the weapon do not have any impact on the ammunition supply. The MGV 176 submachine gun fires singly or in bursts and it possesses a perfect safety mechanism (see Chapters 2.4, 3.3.3. and 3.3.4.).

2.2. Basic Submachine Gun Sub-Assemblies



The MGV 176 has seven sub-assemblies, shown in the illustration.

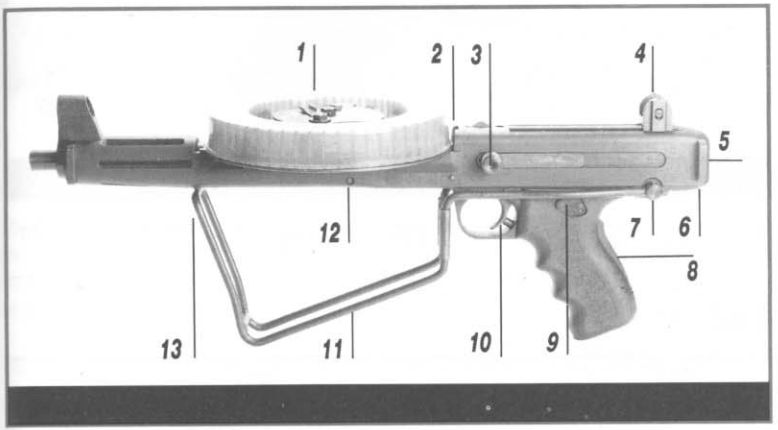
1 - drum, 2 - spring mechanism, 3 - receiver with barrel jacket, 4 - barrel, 5 - bolt, 6 -recoil spring with guide, 7 - grip with trigger mechanism and stock.

By basic disassembly for inspection and regular gun cleaning no further disassembling is either required or recommended.

A unique feature of this submachine is that some parts are made of a light but durable plastic material. The receiver with barrel jacket, the grip, drum top and some smaller parts are made of plastic.

2.3. Operating Controls

The MGV 176 submachine gun has 13 parts for certain functions.



1 - drum spring mechanism, 2 - drum latch, 3 - cocking handle, 4 -adjustable rear sight, 5 - lower sub-assembly latch, 6 - safety button for lover sub-assembly latch, 7 - stock latch, 8 - automatic safety, 9 - manual safety, 10 - trigger, 11 - folding stock, 12 - barrel holder, 13 - folded stock latch. Manipulation with individual operating parts is specified in the next chapter.

2.4. Safety Mechanism

The submachine gun has two safeties, namely, the manual safety and the automatic safety. Both of them block the bolt in forward or rearward position, so the cocked weapon can not trigger. When the bolt is in its forward position, the disengaged safety does not allow manual cocking.

2.4.1.

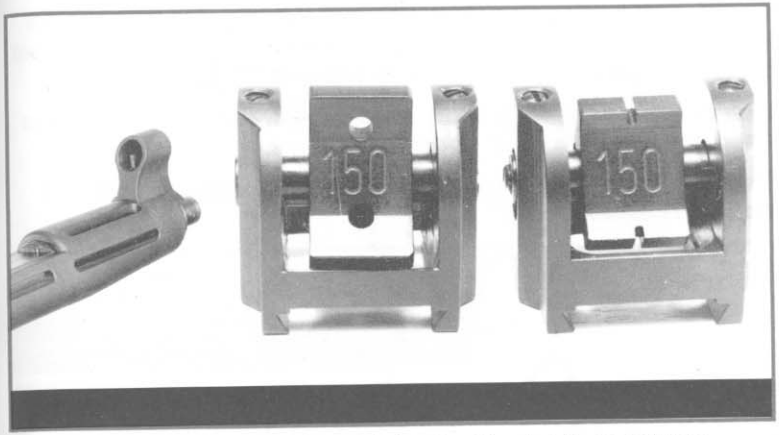
Lever-shaped manual safety is placed on the left-hand grip side. It is put on "safe" when its lever is pushed back, and on "fire" when the lever points towards the trigger.

Manual safety: when pointing to the rear, the weapon is on "safe", but when the lever points towards the trigger, firing is possible.

2.4.2.

Automatic safety is formed as a squeeze-lever on the back of the grip. The shooter disengages it automatically when correctly holding the gun grip; when he abates the grip, the safety automatically puts the mechanism on "safe". This way the automatic safety prevents activating the gun when it falls down accidentally and in similar situations.

2.5. Aiming Devices



The MGV 176 has a fixed front sight with protective tunnel and the adjustable rear sight in two versions. The rear sight basic configuration has three folding leaves with notches for firing at a distance of 100, 150 and 200 m. These numbers are marked on corresponding leaves. A spring-loaded latch holds the three-leave folding piece in set position.

The aperture rear sight is of the same design, save for the holes instead of notches on its leaves.

The rear sight is fixed to the longitudinal guide at the top of the receiver and it can be simply detached. This is done by untightening the fixing screw at the rear sight base and then the rear sight can be pushed back off the guide.

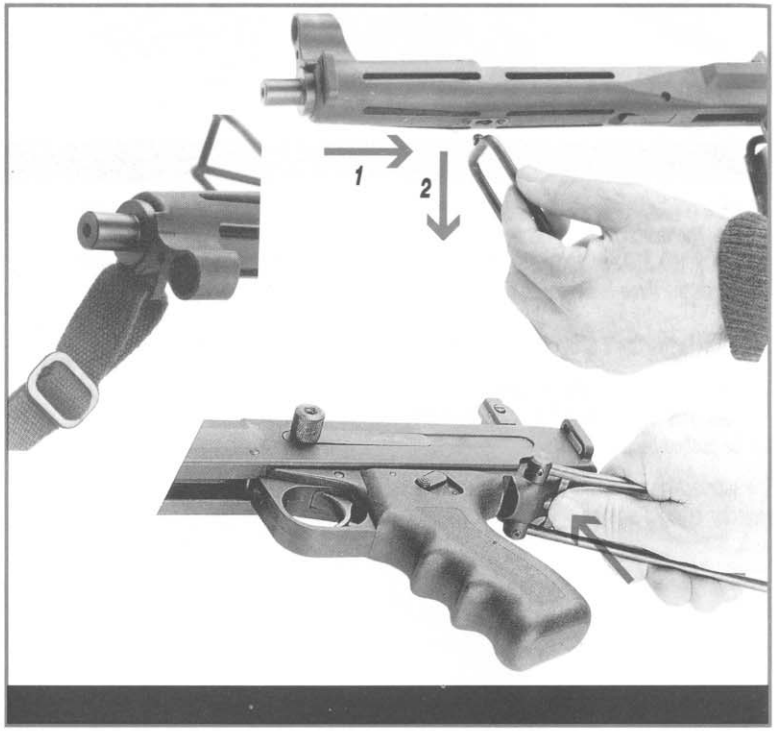
The submachine gun can be equipped with other alming devices, namely, the rifle-scope, laser projector or night sighting device. These are fixed to the receiver-based guide with standard assembly parts.

2.6. Stock and Strap

The stock and the strap enable various modes of firing and carrying the weapon. The metal stock is folding with two special latches which keep it in folded or extended position. The folded stock is fixed by a lug into a recess of a metal on the bottom of the barrel jacket.

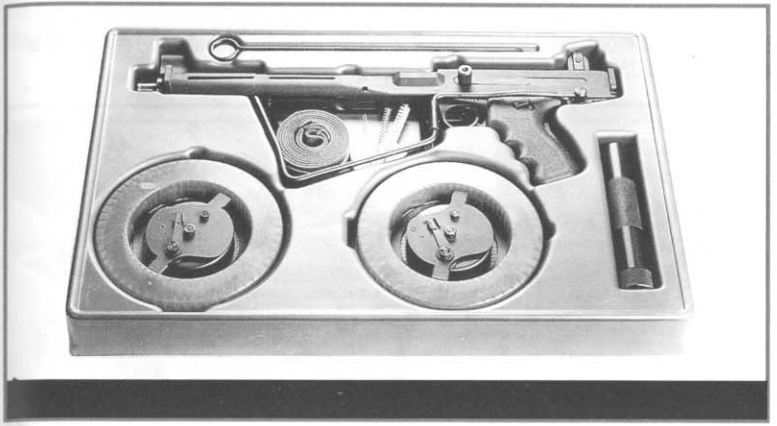
In extended position, the stock blocks by itself. It can be folded only when the stock latch is pressed forward (like button under the receiver rear end).

The canvas strap with its appertinent clasps can be attached to the two rings on both ends of the weapon, on the left-hand side.



The stock is released by pulling its shoulder end back- and downwards.
The arrow points to the latch which keeps the stock in extended position.
The strap fixed to the forward ring.

2.7. Submachine Gun Accessories



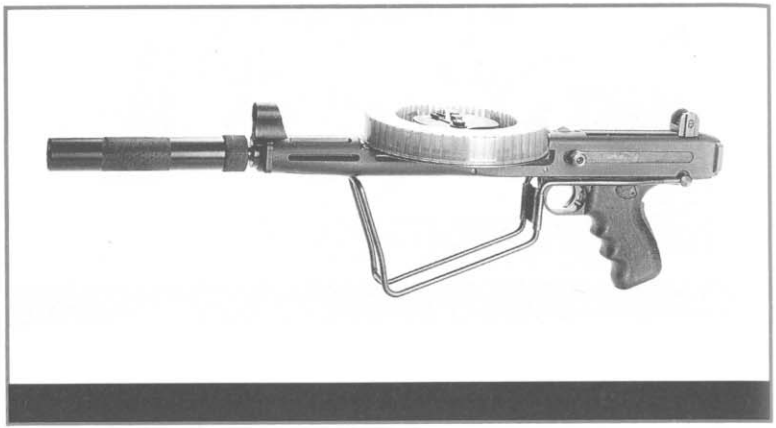
The MGV 176 with accessories.

The MGV 176 is supplied in air-tight plastic box with the following accessories:

- *two drums*
- *a silencer*
- *canvas strap*
- *cleaning rod*
- *brushes*
- *instruction for use*

2.8. Silencer M 88

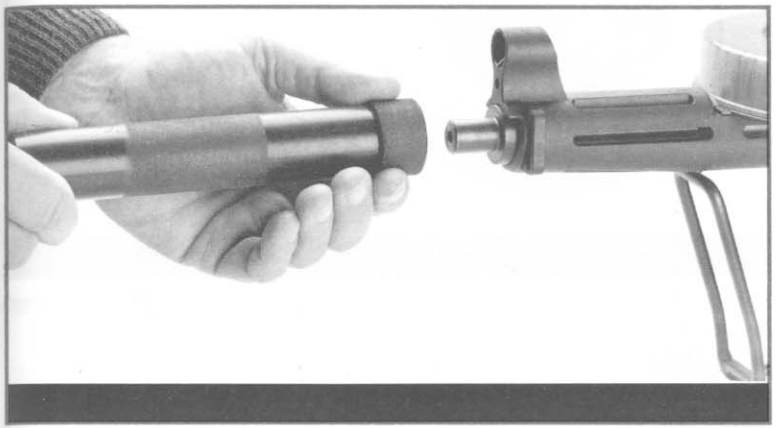
The silencer reduces the report of the weapon. It is more effective when sub-sonic ammunition is used for it is well-known that a projectile makes an additional report upon exceeding the velocity of sound (333 m/s). This can not be reduced by a silencer.



2.8.1.

Basic on Silencer MGV	
length	174 mm
maximum diameter	33 mm
mass	190 g
manufacturing material	steel and aluminium
reduction of gun report	–20 dB (A)

The silencer is attached to the weapon by putting it over the barrel muzzle and rotating its collar to the right (looking from the rear) up to the end. It is detached in reversed order with a light stroke on the silencer in the direction of the barrel muzzle.

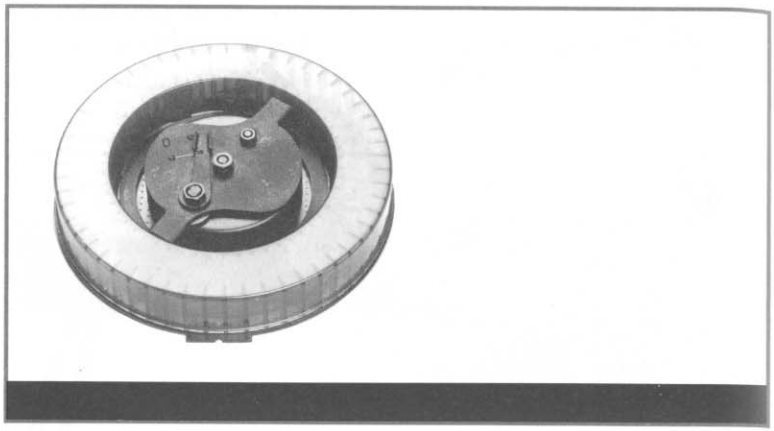


3. Use

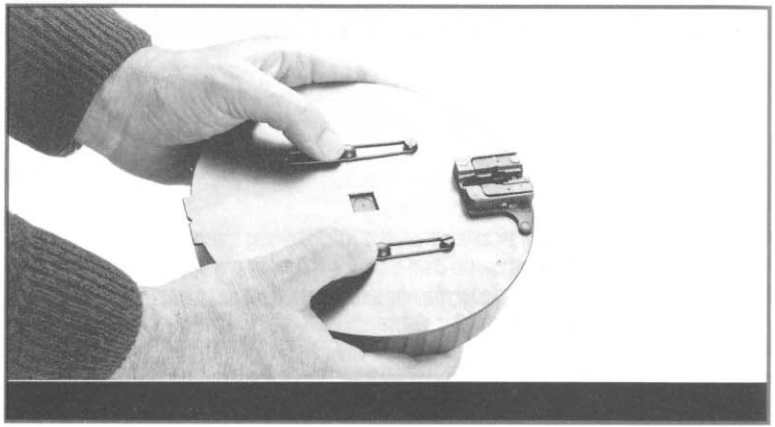
3.1. Drum Loading

The drum is loaded by:

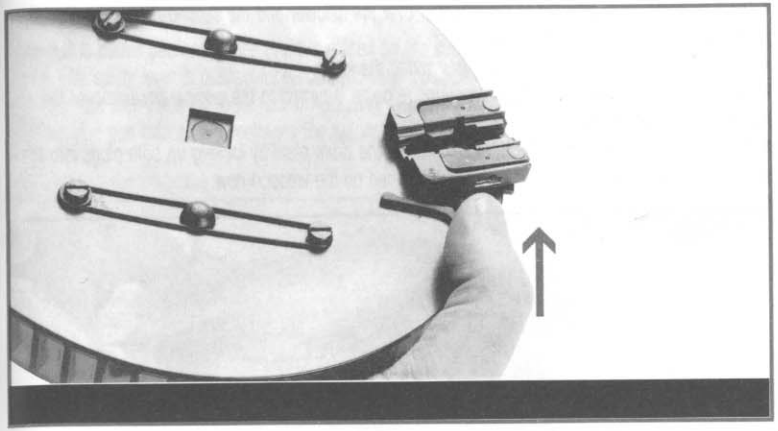
- *moving the drum spring mechanism safety to position "O", the driving spring is blocked*
- *detaching the spring mechanism from the drum plate; this is done by pressing both plugs (which are accessible from the drum bottom of the mechanism) with thumbs at the same time*
- *laying the drum, bottom up to a non-sliding surface*
- *turning the cartridge guide at the drum plate bottom away, exposing the loading slot*
- *drum plate being turned towards drum housing untill the follower (cartridge-shaped) shows up in the slot*
- *inserting the first cartridge into the first free chamber which is subsequent to the follower in the clockwise direction. The loading continues by slightly turning the drum plate and inserting the second cartridge into the next chamber. The procedure is repeated untill the first row in the drum is filled up, when the loading slot comes over the empty chamber before the follower.*



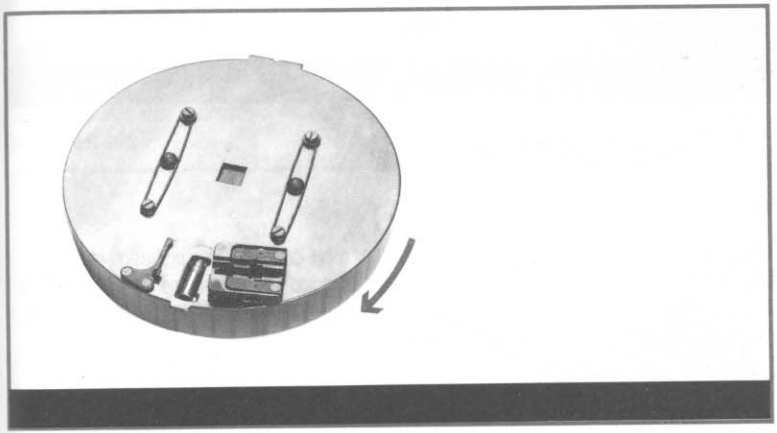
Spring mechanism safety.
Hand in position ∞ — driving spring released.
Hand in position 0 — driving spring blocked.



Detaching the spring mechanism from the drum plate.

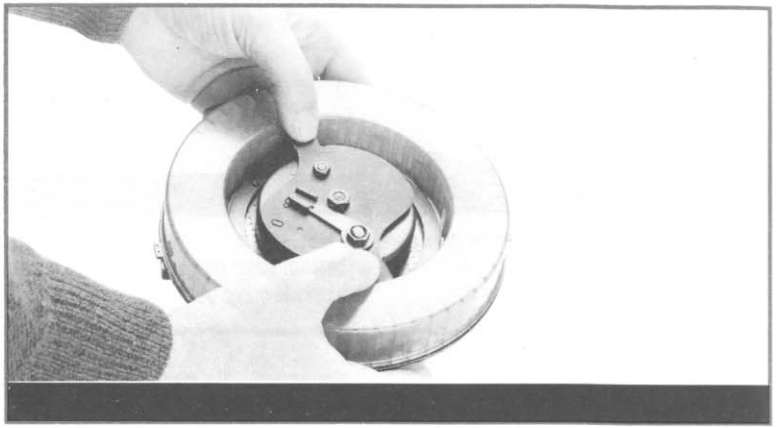


Removing the cartridge guide fixed to the drum plate.



Inserting the cartridges into the drum.

- *The next cartridge is inserted to the chamber over the follower and the second row in the drum is loaded up in the above mentioned way.*
- *The third row of cartridges (up to 161) is inserted the same.*
- *When the last cartridge is inserted, the cartridge guide is turned to the original position over the loading slot where it locks itself.*
- *Finally, the drum spring mechanism is attached to the drum plate by locking up both plugs into the spring loaded latches. The drum is ready to be placed on the weapon now.*



3.2. Firing Preparations

3.2.1. Attaching the Drum

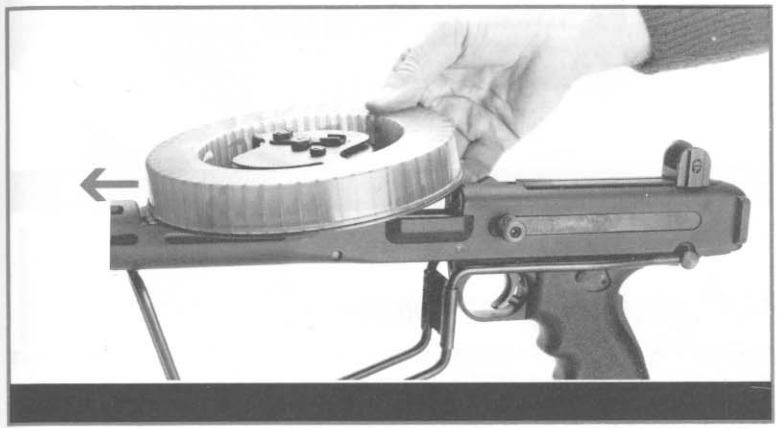
The uncocked submachine gun (bolt in forward position) is put on "safe", wide protrusion of the forward drum end plate is pushed into the notch in the drum bed forward end and the drum rear end is pressed downwards and caught by the latch. Attaching the drum is easier if the second hand pulls the drum latch when pressed downwards.

3.2.2. Activating the Drum

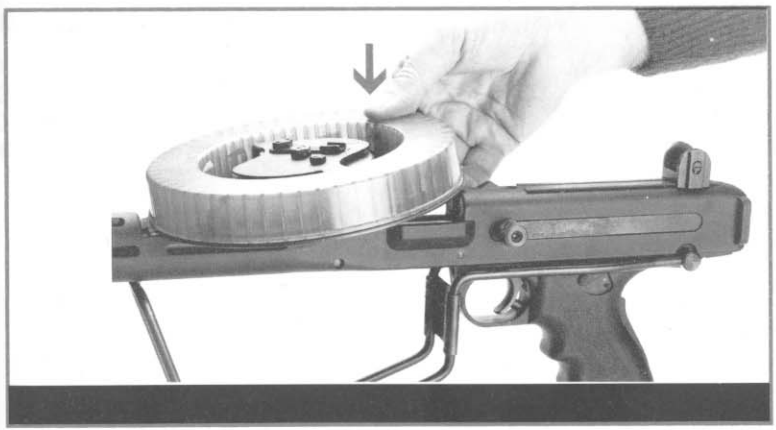
The drum spring mechanism safety is moved towards the center of the drum, to the ∞ marking. This way the drum spring mechanism is on; it is necessary to retract the driving spring only. Do it by hand turning the spring mechanism in clockwise direction. If the drum is filled up, 3 1/4 turns are necessary. When less cartridges inserted, the spring retraction to the end is not recommended. If there is only 1 row of cartridges (up to 54 pieces) in the drum, 1 1/4 turn is sufficient, and by two full rows 2 1/4 turns. Then the drum is ready for firing.

3.2.3. Cocking the Bolt

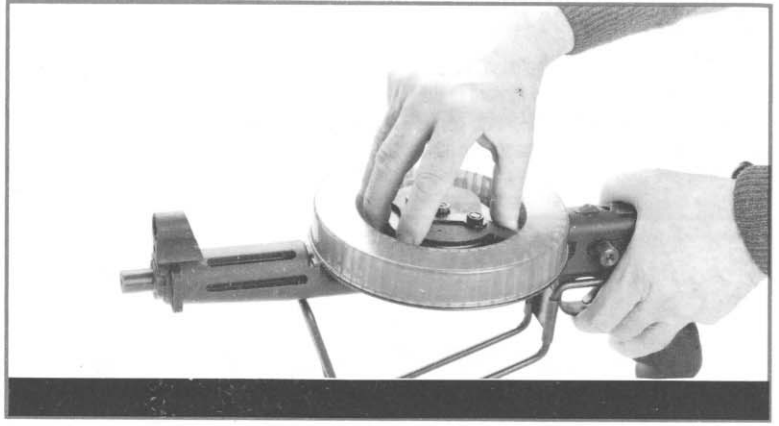
The bolt is pulled back when the drum is placed on the submachine gun and immediately before firing. The safety lever is pushed forward to the "fire" position, then the bolt handle is pulled fully to the rear and then returned to its forward position. In bolt cocking, a proper hold is important on the submachine gun grip as it disengages the automatic safety which otherwise prevents bolt movement.



Drum placement: wide protrusion of the drum plate forward end is pushed into the notch in the drum bed forward end.



The drum rear end is pressed downwards and caught by the latch.



Cocking the drum driving spring: the spring mechanism is turned in clockwise direction.

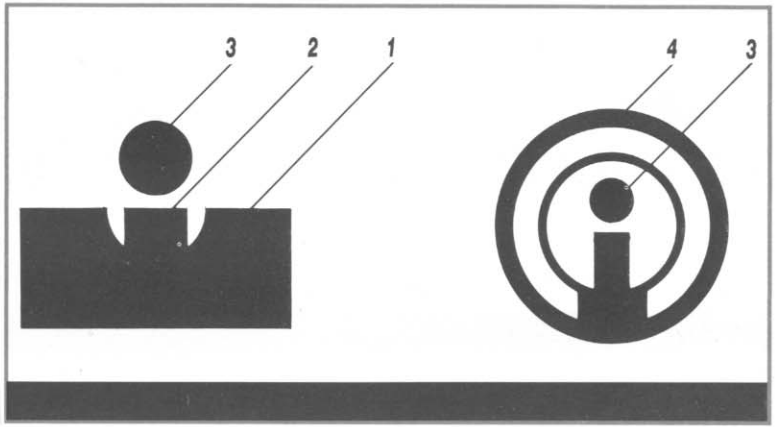
3.2.4. Accelerated Firing Preparations

Accelerated firing preparations are also possible; this is done by attaching the drum spring mechanism and cocking it before the drum is placed on the weapon. In this case the weapon must be on "safe" and its bolt cocked (in rear position) before drum placement, otherwise the drum can not be correctly set because of driving spring resistance.

3.3. Firing

3.3.1.

Aiming is performed in the usual manner. After estimating the firing distance the rear sight is set accordingly and the weapon is pointed over the rear sight notch and front sight to the target (aiming point). If the aperture rear sight is used, the front sight is led into the center of the aperture in the back sight; in this position the front sight is directed to the aiming point.



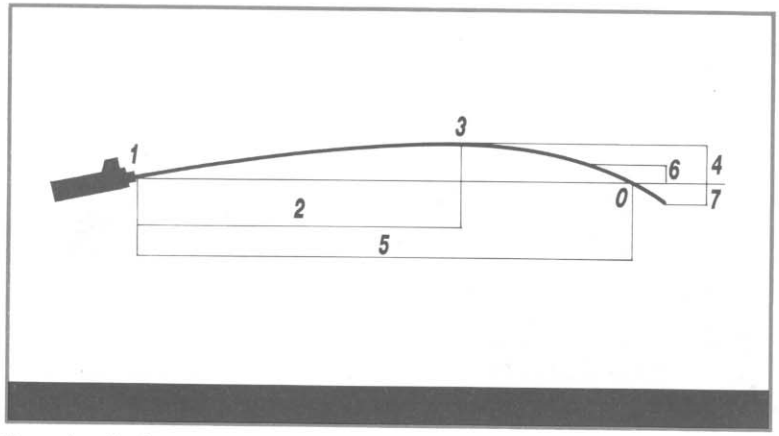
The correct aiming point with both types of sighting devices.

The numbers denote:

1 — the folding leaf with the notch
2 — the front sight
3 — the target
4 — the folding leaf with aperture

3.3.2.

The knowledge of basic ballistic data enables more efficient weapon use. A typical .22 Long Rifle HV cartridge employs a 2.6 g projectile which leaves the MGV 176 barrel with a muzzle velocity of 360 m/s. The basic ballistic features are given in Tables I and II.



The numbers denote:

1 — the submachine gun
2 — the abscissa of the mid-range trajectory
3 — the mid-range trajectory
4 — the ordinate of the mid-range trajectory
5 — the firing distance (the abscissa)
6 — the positive ordinate of the trajectory before the point of impact
7 — an example of the negative ordinate of trajectory for the point of impact
0 — the sighting-in distance (also the point of impact in Table I).

Table I.

Firing Distance /meters/	Time of Bullet Flight (seconds)	Velocity of Bullet at the Point of Impact /m/s/	Kinetic energy of Bullet at the Point of Impact /Joules/	Abscissa of Mid-Range Trajectory /m/	Ordinate of Mid-Range Trajectory /cm/
50	0.149	314	128	26	2.7
100	0.317	286	106	52	12.4
150	0.498	265	91	79	30.8
200	0.694	247	79	106	59.9
250	0.903	231	69	133	101.8
300	1.128	215	60	161	158.8

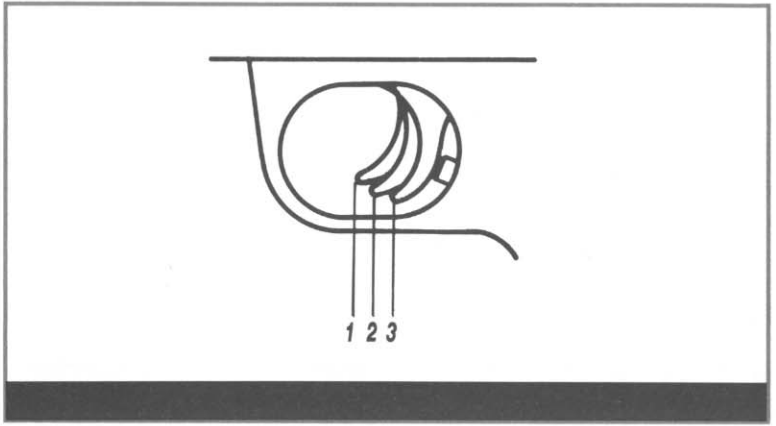
Table II.

Abscissae (m)	50	100	150	200	250
Rear Sight Graduation			Ordinates /cm/		
100	+ 12	0	— 42	— 119	/
150	+ 26	+ 28	0	— 63	— 167
200	+ 42	+ 60	+ 47	0	— 87

0 = sighting-in distance

3.3.3. Single-Shot Firing

Following the firing preparations the trigger is pressed back until a resistance is felt (app. at the mid-travel of the trigger) which fires a single shot. For the next shot it is necessary to release the trigger to the starting point and once again press it in the same manner.



The three trigger positions:
1-normal position
2-pull for single-shot firing
3-complete pull for burst firing

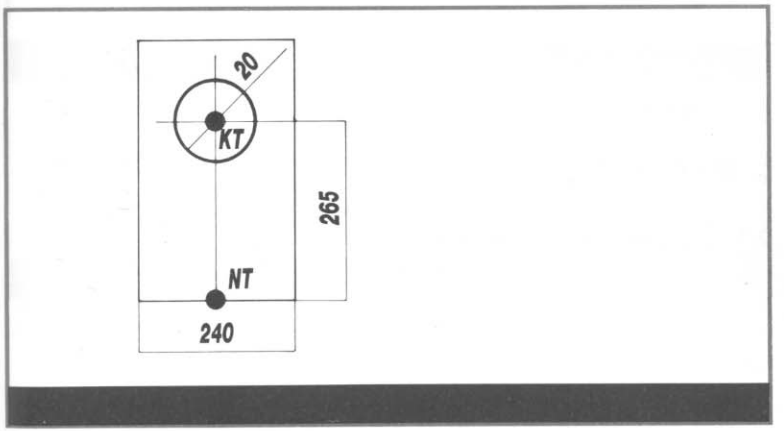
3.3.4. Burst Firing

After the completement of firing preparations the trigger is to be pressed back to the fullest and the weapon fires automatically (in burst) untill the trigger is not depressed or ammunition supply depleated. With the first or the second mode of trigger pressure the type of fire is selected at will; because of this feature the submachine gun does not have a separate firing selector.

4. Sighting-in

4.1. Firing Accuracy and Precision Estimation

The gun is tested by firing at a target of 50 m. The firing is done in single-shot mode with five .22 Long Rifle HV cartridges. The rear sight must be set at 150 metres. The aiming point is in the middle of the lower black rectangle border, the control point 265 mm above the aiming point.
It is considered that firing accuracy and precision are sufficient if at least four hits out of five can be covered by a circle of 150 mm in diameter and if the middle hit is not dislocated from the control point for more than 50 mm in any direction. If the hit dispersion is excessive (the best four hits exceeding the 150 mm circle in diameter), the weapon is considered non-precise and it must be examined by a specialist. If dislocation of the middle hit is excessive, the weapon is considered non-precise, therefore, the rear sight being moveable laterally and horizontally must be adjusted accordingly. The rule of sighting-in is that the direction of the rear sight movement must be opposite to the direction of the middle hit. Example: if the middle hit is at the left side and bellow, the rear sight is moved by using the adjustment screws to the right and upwards. At the distance of 50 m, the rear sight movement of 1 mm results in movement of the middle hit position for 12 cm.
After the first rear sight adjustment the submachine gun is tested and the results not satisfactory, the procedure must be repeated. The weapon is always sighted-in with the same type of the ammunition that will later on be used since the ammunition power by rule influences the middle hit position. A similar method must be used also for sighting-in the scope, laser projector and other kinds of sighting devices.

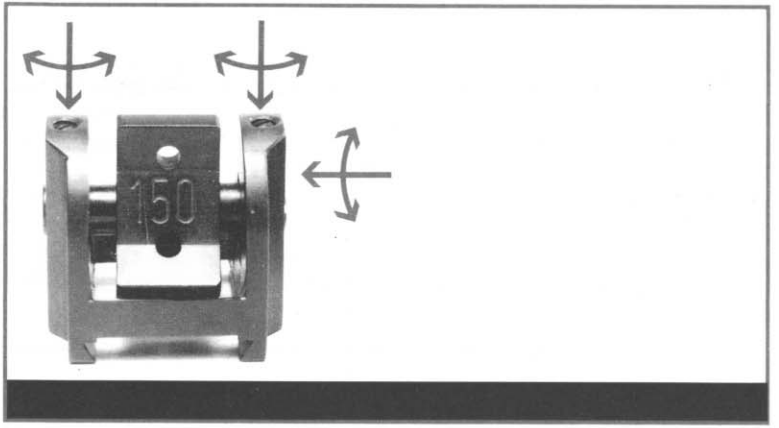


NT-the aiming point, KT- the control point

4.2. Rear Sight Adjustment

Submachine gun sighting-in is performed so, that the rear sight folding piece is moved horizontally and laterally.

To move the folding piece laterally, a small screwdriver is used to loosen the fixing screw on the left-hand side of the folding piece axle. Now the folding piece can be moved by hand. When the lateral adjustment has been completed, the fixing screw must be tightened. Vertical adjustment is accomplished by screwing-in and out the two screws above both side-plates of the rear sight. Both of them are moved in the same direction. When screwing-in, the folding piece is pushed downwards, when screwing-out, the folding piece rises.



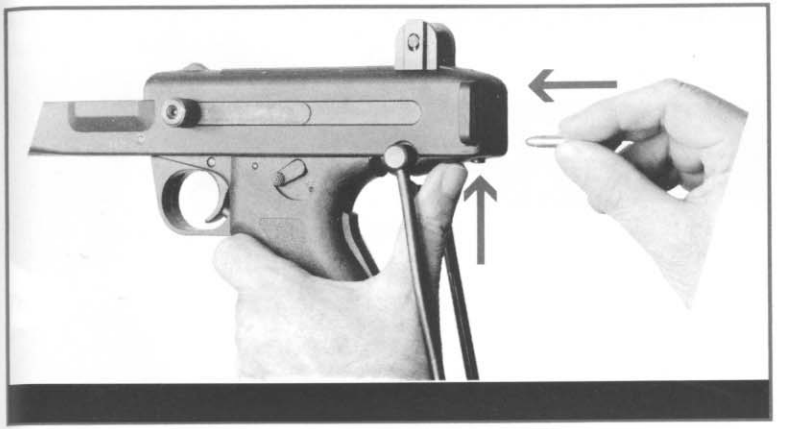
Aperture sight version of the rear sight, using holes for aiming.

5. Maintenance

5.1. Disassembly and Assembly

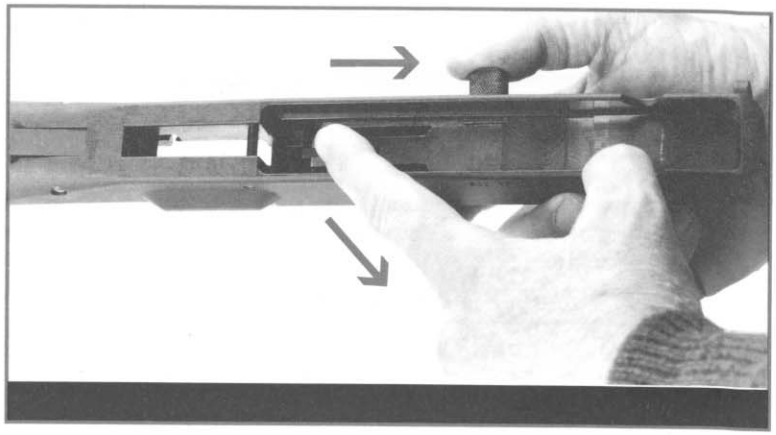
The MGV 176 can be disassembled and assembled without tools. Disassembly is accomplished in the following order:

- *the drum is removed, the barrel checked if empty*
- *the weapon is released and stock extended*
- *the safety latch of the lower sub-assembly is pushed upwards and held there*
- *using a pointing object (such as a cartridge) the latch of the lower sub-assembly is pressed inwards and at the same time the rear end of the mentioned sub-assembly is pulled downwards, separating itself from the receiver.*

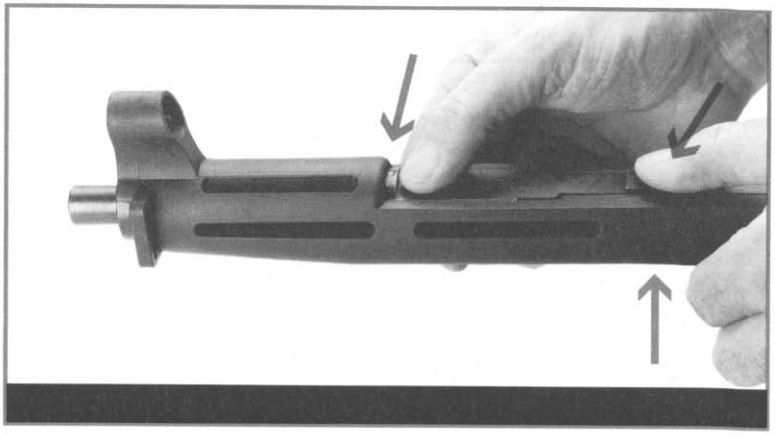


Detachment of the lower sub-assembly: safety latch is pushed upwards then using a pointing object, the latch is pushed inwards and the same time the rear end of the sub-assembly is pulled away from the receiver.

Lower sub-assembly separated from the receiver



Pulling the bolt out of the receiver. The arrows indicate the direction of the movements.



The barrel disassembly: the barrel holder is pressed and the barrel pulled out of the jacket.

With cocking handle the bolt is pulled back 4-5 cm, through the lower open side of the receiver, the bolt is gripped from the front side by a finger, and pulled out.

The recoil spring and the recoil spring guide are removed.
The spring mechanism is separated from the drum, which is done by pressing both plugs of the mechanism with thumbs that are accessible from the lower side of the drum plate.

Before this the driving spring must be blocked by removing the spring mechanism safety to position 0.

Pressing the barrel holder, the barrel can be pulled forward, out of the jacket.

A more detailed disassembly is not necessary for regular control and cleaning. The weapon assembly is performed in the reverse order.

5.2. Weapon Cleaning and Lubrication

The submachine gun must always be in perfect condition which is possible by proper use, regular controls, cleaning and lubricating.

When cleaning the weapon, it must always be unloaded. Firstly, its outer side is wiped with a soft cloth. The weapon is field- stripped (figure on page 78) and the inner surfaces also wiped with a soft cloth.

More difficult accessible parts are cleaned by a cloth wrapped stick and by no means by a sharp metal object. For cleaning the barrel both, the cleaning rod and the brush, are available. Barrel cleaning with the rod is always performed from the breech so that the barrel muzzle is not damaged.

The silencer is cleaned as the rest of the metal parts.

For cleaning more dirty metal and plastic parts one can use detergent cleaners, gasoline, petroleum, oil, or any suitable commercial product.

For lubrication of the metal parts, protecting oils or commercial lubricants, such as WD 40, are used. Lubricants are applied in thin layers using a cloth or a brush.

Plastic parts need not be oiled.

6. Jams and Their Elimination

If properly used and also subjected to regular maintenance, the MGV 176 submachine gun functions reliable and without jams. Nevertheless, jams are possible after longer use of the weapon because of the unsuitable ammunition, unfavorable outside conditions or improper treatment.

6.1. Jam Types

The jams can be seen as mentioned bellow:

- ***When the trigger is pulled, the bolt does not move forward.***

Possible reasons:
- *The shooter did not disconnect manual or automatic safety.*
- *Excessive dirt inside the receiver.*
- *Breakdown of the trigger mechanism.*

- ***The bolt thrusts forward, but it does not push a cartridge from the drum to the barrel.***

Possible reasons:
- *The drum is not fully in its place.*
- *The drum spring is not under tension.*
- *The drum drive is not on.*
- *There is a deformed cartridge in the drum.*
- *Dirt in the drum.*
- *Damaged drum.*

- ***The bolt pushes the cartridges into the barrel, but it does not fire it.***

Possible reasons:
- *Defective cartridge.*
- *Dirt in the receiver inner side, cartridge chamber (barrel) or on the bolt face.*
- *The barrel is not held in its place.*
- *Bad recoil spring.*

- ***The bolt does not move back to the cocked position after activating the cartridge.***

Possible reasons:
- *Cartridge load (powder) less powerfull.*
- *Extremely dirty moving parts.*

6.2. How to Eliminate Jams

In case of jams the weapon is to be turned to a safe direction. Firstly, the state of the drum is checked if it is fully in its place, if the drum spring is under tension and if the drive is on. If no visual damages, the drum is to be detached, the bolt pulled to the rear position and a cartridge or cartridge case that might be lugging behind is removed from the barrel or receiver. If possible, the reason of a jam is to be found and eliminated so the firing can be continued. If the weapon continues making troubles, it is to be unloaded and sent to be repaired.

Firing the submachine gun from standing position

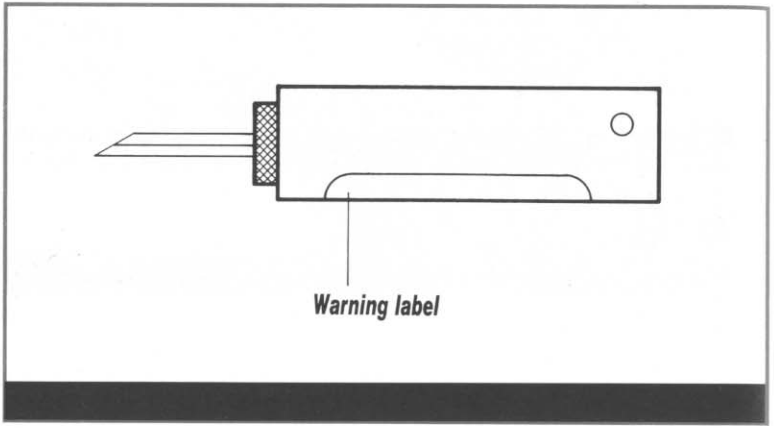
Firing from the prone position

Firing the submachine gun from the kneeling position

8. Instructions for Use for a Laser Aiming Device

Laser light – do not expose your eyes to laser beam
Wavelength 670 mm, bmW MAX – 0.05 ms
Laser class III A

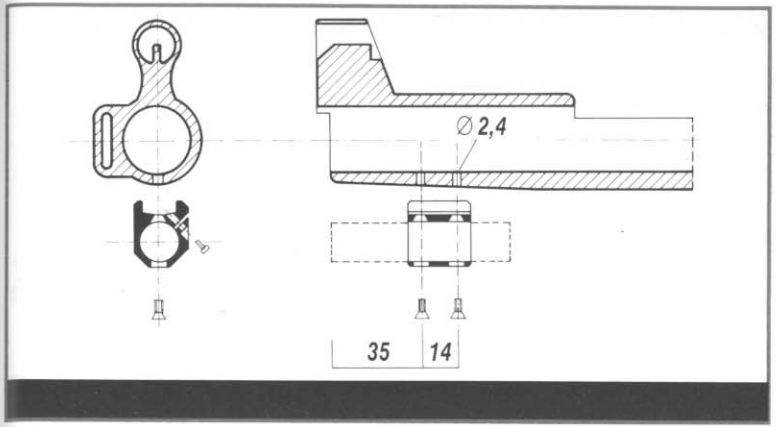
Every usage, not followed by the instructions, may cause severe injuries.
The warning label is fixed on the following place.



Instructions for Safe Use

Before the installation of the laser or any other act after the laser is installed, the instructions must be exactly followed:

1. *The Submachine gun must allways be turned to the "safe" direction.*
2. *The manual safety must be in "Safe" position.*
3. *Check up the gun barrel and the drum – the weapon must be empty.*



Adjusting

After the installation of the laser device on the weapon, it is necessary to adjust the laser beam on the slope-cross or on the "shot spot. Fix the weapon and turn slowly, by using the equipped wrench, both adjusting screws. The screws must be turned very slowly: only by quarter turns to left-or right-hand side, up- or downwards. In this way, the laser point will cover the scope cross or the "shot spot".

Battery Exchange

1. *Use the battery Duracell TK175 or equivalent.*
2. *Unscrew the lid and remove the empty battery.*
3. *Put in the new battery as marked (+ towards the back part, – towards the laser output), screw the lid back again.*

Warning: *The brass inset does not fit closely the hollow of the insulator, so be carefully not to loose it at the battery exchange. If this happens, put the inset back.*

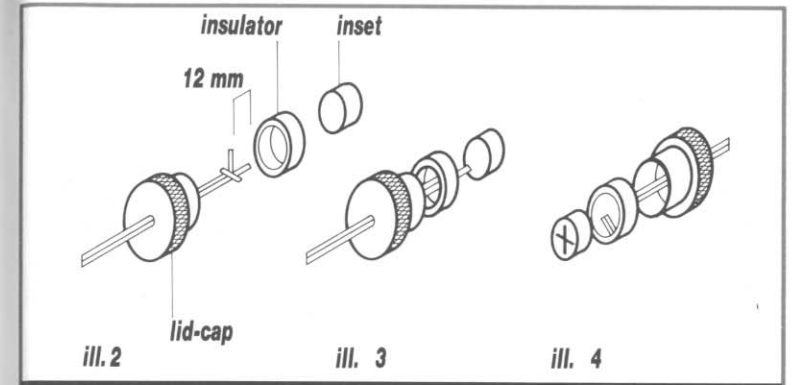
Maintenance and clearing defects

The user can act out only the processes, that are described below, to mainain the weapon. All other repairs can only be carried out by the manufacturer.

1. *The laser will not work:*
   a) *Check up the position of the battery. If the position is correct, exchange the battery.*
   b) *If the defect is still not cleared, check out the wire up to the Reed switch. If the wire is torn apart or contactless, the weapon must be sent to the service.*
2. *The laser is dirtyl or wet:*
   The filth on the outside parts can be wiped off with a wet clotch. If the laser output is dirty, wash it out with water, blow away the remaining water from the optical surface. Do not clean the lense with a cloth, a wadded stick or anything similar.
3. *The laser beam is weak:*
   a) *Check out if there is any water or filth in the optical output. If so, follow the instructions as in point 2.*
   b) *Exchange the battery.*
4. *The laser beam stays not adjusted, it shifts:*
   Check out if the adjusting screws are loose. Follow the instructions for adjusting.

Characteristics:

Laser-type	*laser diode*
Output power	*less than 5 mW*
Wavelength (centre)	*670 mm*
Number of impulses/seconds	*10*
Visibility	*more than 100 m (in darkness, twilight)*
Carging capacity	*5 — 10 V (7 V bat. TR 175)*
Shelf-life of battery (TR 175)	*1 hour of uninterrupted usage*
Temperature range	*— 20 do + 50 °C*
Point-size	*tipically 80% of beam in cross-section* *2 — 3 mm per 15 m*
Beam-adjustability	*+/— 25 cm/10 m*



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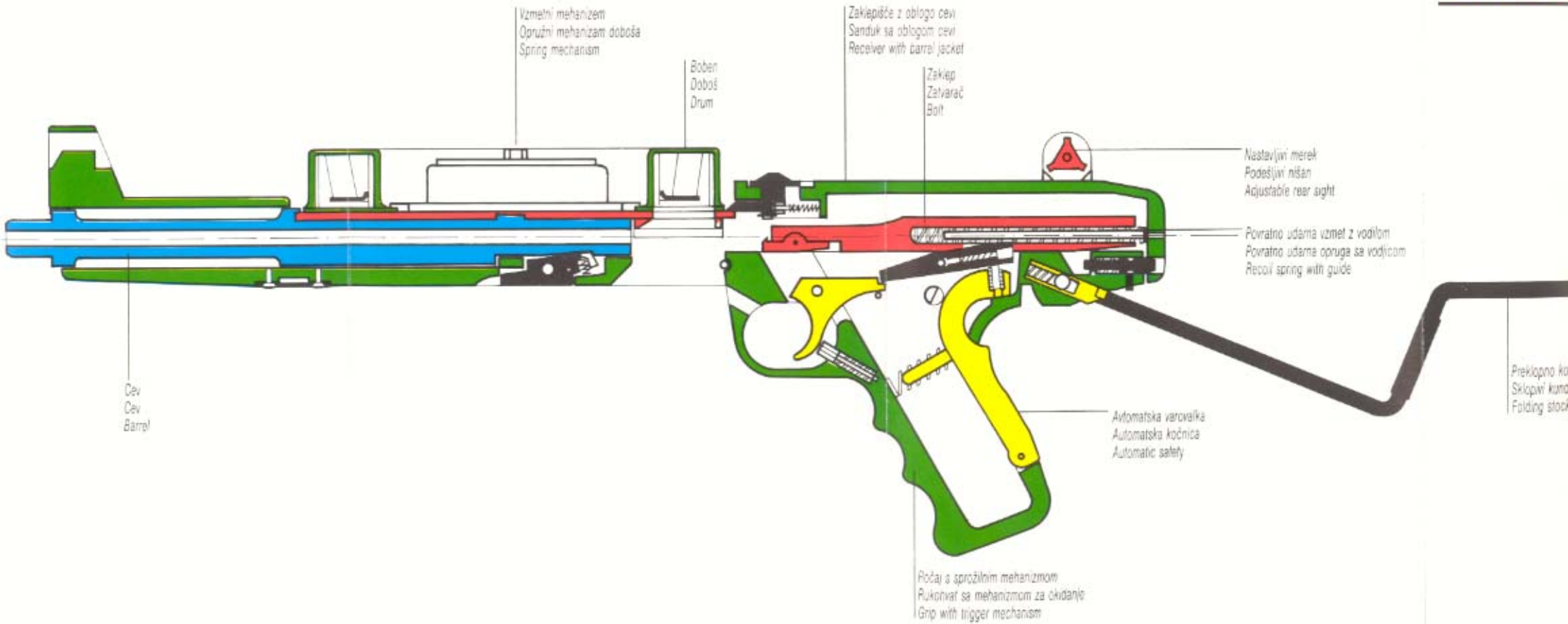
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